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The Professional Geographer, the Journal of the Association of American Geographers, New Series, Volume VI, Number 1, January, 1954. Published bi-monthly by the Association of American Geographers at The Library of Congress, Washington 25, D.C. Annual subscription $3.00. Editor: Arch C. Gerlach, Map Division, The Library of Congress, Washington 25, D.C. Entered as second-class matter at the post office at Washington, D.C.

EMPIRICAL AND EXPLANATORY METHODS IN PHYSICAL GEOGRAPHY

Arthur N. Strahler
Department of Geology
Columbia University, New York

Does the geographer profit more from purely empirical statements of the facts of physical geography or from explanatory descriptions in which the origin of the environmental factors is stressed? The term "empirical-quantitative method" means here the statement of factors of terrain, climate, or soils, in terms of systems of symbols, dimensional numbers, or dimensionless ratios giving quantitative values and their geographical distributions, without considering the processes by which these characteristics are developed. By the "explanatory-descriptive method" is meant the description of factors of terrain, climate or soils in qualitative, generalized expressions accompanied by explanations of the development of the forms through the action of natural processes and by classifications of the forms into groups determined by common origins.

For example, in the study of terrain the empirical-quantitative method would include, among other things, numerical values for the slope of the ground surface, including mean slope, deviation of slope from the mean, and the form of the frequency distribution of slope steepness with respect to area. Drainage patterns would be treated in terms of the order of magnitude of the various stream segments and the azimuthal distribution of these elements. There are many other geometrical qualities of terrain that can be measured and presented statistically or by means of suitable maps without any reference whatsoever to geologic processes that formed the terrain, and indeed, without requiring any knowledge of this science upon the part of the operator. Under a Columbia University project sponsored by the Geography Branch of the Office of Naval Research the quantitative morphometry of erosional terrain is being studied; a fairly complete system has been worked out for isolating the geometric values independently of the problem of geologic processes.

On the other hand, William Morris Davis and many of his students and followers, among them such physical geographers as A.K. Lobeck, Douglas Johnson, C.A.Cotton, Nevin Fenneman, L.C. King, have preached and practiced the explanatory-descriptive method of terrain analysis in which virtually no quantitative statement is found, but instead a classification and general description of the landform assemblages based upon the geologic process that formed them, the geologic structure that influenced their development, and the stage of development attained in the erosional cycle.

The explanatory-descriptive system has its most effective applications in introductory stages of learning about the principles of physical geography. For the student experiencing the study of earth science for the first, and in most cases the last time in a formal class, the problem is one principally of creating an understanding of broad classes of phenomena and their typical occurrences. No strictly empirical system based upon arbitrary symbols, numbers, ratios, or indices will convey understanding of the phenomena; instead such operational definitions will be memorized for examinations and subsequently forgotten almost entirely. Under the explanatory-descriptive approach terminology is secondary to understanding of cause and effect; the numerical data and symbols are almost entirely absent.

A second merit of the explanatory-descriptive treatment, one that can be taken advantage of by advanced students and professional geographers as well, lies in the possibility of predicting phenomena from limited information. For example, in a favorite examination question used by one of my colleagues, an imaginary small continent is drawn in the open expanses of the south Pacific and the student is asked to predict the types of climates that would be found. The only information given is that of outline of the land, with general distribution of mountains and low plains. By analogy with existing continents and with an understanding of the causative influences upon climate, a reasonable climate map can be drawn. Of course, the hypothetical case lacks utility, but when a student has forgotten the climates of, say, Australia or east Asia, he can reconstruct the picture through his knowledge of principles.

In the case of terrain, the explanatory-descriptive system has important advantages in prediction for little-known areas where information on the terrain itself is lacking but where the geologic and climatic factors are known. Thus if geological maps show folded sedimentary strata in northern Algeria and the climate is known to be arid, the geomorphologist combines his knowledge of the ridge-and-valley forms of eroded folds with his knowledge of pediment surfaces and related stream erosion forms of the desert, and is not at all surprised to find upon visiting the area that his preconceived picture of the landscape coincides almost exactly with actual conditions. It follows, then, that prediction of expected phenomena is successful in direct pooportion to the degree of understanding of the genesis of the phenomena and the various controlling factors. For this reason the professional geographer should strive continually to improve his understanding of earth science subjects, and should insist upon rigorous student training in geology, geomorphology, climatology, hydrology, soil science, and plant ecology.

The empirical-quantitative system is indispensable in the actual practice of geography where the influences of the physical environment upon man, his economy, history, and institutions are being studied. Thus in agricultural or military phases of geography where the influence

In the case of soils, an empirical method would consist of numerical statements of the textural composition of the soil, its structure or constitution, mineralogical and chemical constituents, and any of the other physical or chemical attributes that might be measurable. The explanatory-descriptive system would consist of description of the typical soil profiles characteristic of large regions (great soil groups) classified according to hypotheses of origin through controlling factors of climate, terrain, or age of development.

In the study of climates the empirical approach is essentially that of the application of mathematical statistics to records of the climatic elements -- temperature, precipitation, evaporation, and others -- with emphasis upon mean values, departures from means, probabilities of occurrence of given values, cyclic phenomena, and trends. No consideration need be taken of atmospheric dynamics in this form of analysis because the data are given to the analyst in terms of magnitude and geographical position. An explanatory-descriptive treatment of climate has perhaps only recently been attempted in the sense that it is found in geomorphology and pedology. The systems of Köppen, and Thornthwaite are entirely empirical, even though explanations of the origins of particular climate types are normally introduced along with them. The dynamic meterologist attempts to explain global circulation, meteorologic disturbances, and atmospheric discontinuities in terms of energy transformations through the use of mathematical models. While representing the ultimate in scientific analysis, this method is not comparable to the explanatory-descriptive method used in geomorphology and is beyond the intellectual reach of the geographer. I have recently tried to set up, in tentative terms, a simple system of climate classification based upon air masses, their source regions, and frontal zones for use in elementary college teaching on the same level as the Davisian type of geomorphology.[1] The description of climates in this system is largely qualitative, temperature and precipitation being given in rough approximations only; emphasis is upon the origins of the seasonal characteristics of the climates in terms of prevailing airmasses and their movements. In classroom use the system has proved to be much more palatable and meaningful to the students than a system of symbols defined by a list of rules.

As geographers are well aware, there is today a considerable divergence of opinion as to the merits of the two approaches to physical geography. My principal thesis in this paper is that both kinds have an important place in geography as it is taught and practiced today, but that each of the methods has its special uses and cannot be interchanged at will. What I consider to be the uses in which each system has maximum value are the following:

1. Strahler, A.N., Physical Geography, John Wiley & Sons, N.Y., 1951 442 pp.

of terrain is being considered, it is the slope itself that counts, not the geomorphic processes that produced the slope. Where climate is being considered, it is the actual conditions of temperature, precipitation, or evaporation that count, not the genesis of the climate in terms of airmass movements. Where soil is being considered, what counts is the physical and chemical composition of the soil in terms of fertility or load-bearing capacity, not what great soil group it belongs to and what its history of origin has been.

If the geographical investigation is quantitative, that is, if an attempt is being made to establish mathematically the parameters of significant regressions between one or more physical factors and some economic or social element, the empirical data are indispensable. For example, if the influence of degree of ground slope is to be related mathematically to values of farm lands or crop production, the slope data must be numerical. Consequently an understanding of the regional characteristics of the topography simply as "early-mature in the normal erosional cycle" is completely useless for the regression analysis.

We come now to a complexity in the problem that points to a need for both methods as working tools of the geographer. If, in the study of influence of slope on crop production mentioned above, the investigation were carried out by a geographer who had never studied the explanatory-descriptive methods of geomorphology, he could not make an intelligent selection of the statistics from which the slope data are derived. For example, he might mix indiscriminately areas of kame-and kettle topography or sand dune areas with normally-eroded stream valleys and ridges, unaware that along with distinct terrain differences in these different geologic types there are other differences (infiltration capacities, soil structures) which would also influence crop production. The point is that statistical analysis is a mechanical process and yields valuable results only in proportion to the skill and background knowledge shown by the scientist who selects the sample data and interprets the results. If in the training of the geographer the understanding of earth-science processes has been neglected, his later analytical studies will contain inherent defects.

The element of scale is also important in distinguishing between the two methods of physical geography. The explanatory descriptive method is strongest in providing generalizations over broad areas -- a physiographic province, a great soil group, a climatic province -- whereas, the empirical-quantitative method is strongest in supplying the qualities of small areas and specific cases within these larger groupings.

In summary, the empirical-quantitative and the explanatory-descriptive methods of physical geography are both vauuable to the professional geographer and should be strongly represented in his training. The explanatory descriptive method should be used in introductory geography

courses where cultural aims of a general education are paramount. Beyond this, the method is valuable to the professional geographer in increasing his ability to predict expectable phenomena from limited data and in enabling him to select sample data wisely for quantitative studies. The empirical-quantitative method should be used principally by the specialist investigating geographical research problems and is the only way in which the information can be handled for statistical and mathematical analysis. Rather than rejecting one method in favor of the other, the modern geographer might well give more attention to cultivating both far more vigorously than he has thus far.

COMMENTS ON EMPIRICAL AND EXPLANATORY METHODS

Glenn T. Trewartha

The contrast presented by two of the principal sub-divisions of physical geography in terms of their reliance on empirical-quantitative, as compared with genetic or explanatory-descriptive, method is striking. Geomorphology with its roots in geology and its emphasis on structure, process, and stage has provided the geographer with a completely inadequate quantitative description of the earth's surface features. By contrast, climatology, relying almost exclusively on empirical-quantitative method, has provided a relatively satisfactory descriptive regional analysis of composite atmospheric conditions for many parts of the earth, but which at the same time is largely lacking in genetic treatment. In the latter case the empirical descriptions of climate are usually boring and lacking the zest which accompanies an evolutionary or explanatory treatment. Not only is such description vapid and dull but it provides no background for appreciating repeating patterns or of predicting occurrence. The Köppen-Geiger "Handbuch der Klimatolo gie", the most complete and modern compendium on regional climates now available, is a classical example of how tedious and pedestrian description based exclusively upon the empirical-quantitative method can be. A.J.Connor's volume on Canada is something of an exception to the others composing the Köppen-Geiger series.

Professor Strahler is correct, I believe, in emphasizing that both methods are necessary in physical geography. For the geographer whose physical geography has an anthropocentric slant and who therefore views the physical earth as the home of man, empirical quantitati description is absolutely essential. The facts of terrain and climate need to be presented realistically and without forcing them into any preconceived genetic structure. But, on the other hand, such descriptions have greatly increased quality if they are supplemented and buttressed by expositions which give insight into origins, so that the facts of distribution fall into understandable patterns. Indeed it is only by such a method that the exceptional elements, the departures from the standard pattern, are recognizable.

THE LANGUAGE OF MAPS

J.M.Blaut
Louisiana State University

One is uncomfortably aware that any criticism of the sanctity of maps tends to raise many eyebrows in our science, yet it would seem that Clarence L. Vinge's thesis (The Professional Geographer, May, 1953) that the map is the heart of geographic thought, the "principal language of geography," should be questioned. None can deny the usefulness of maps to geography, or the inadequacy of much of our present work and training in cartography. But if we were to attempt to frame our concepts solely, or largely, in the language of maps we should so seriously limit ourselves as to disqualify geography as a science.

"Cartographic communication," the attempt to render abstract ideas through the medium of the map and map-symbol, has a number of serious limitations, some of which may be mentioned as follows:

1. Maps artifically segregate the spatial aspect, and largely ignore the temporal aspect, of space-time reality. The map is an abstraction dealing primarily with the structure of areas; what it generally shows is a representation of distribution, with temporal change largely ignored except where highly simplified concepts of change can be shown by arrows, date labels, sequences of isochrones, degree-of-change devices, etc. We simply cannot adequately portray change by means of maps; perhaps the best we can do is to prepare a temporal sequence of maps of one locality, a series of artificially segregated "instants," and force the mind to treat them as indicators of continuous flow, much the same as in a movie sequence. A science, natural or social, does not merely describe a field of phenomena existing at the time or under study, and let it go at that; nor does it stop after classifying these phenomena, recognizing a degree of order and structure in the field. It attempts to explain both the phenomena and their ordered arrangement; it seeks to discern the processes, or patterns of development, which have brought about the momentary situation, and often to project these processes hypothetically into the future and thus predict future change. Geography, to qualify as a science, cannot limit itself to describing and classifying - or arranging in an areal framework, as in part it would be in our discipline - the phenomena we observe. We must, as Sauer observes, "think in terms of processes," thus approach an understanding of "why" and achieve a basis for prediction. It is in this attempt to trace patterns of development that cartography fails us, since processes cannot be symbolized adequately or directly by means of maps.

2. Not all distributions can be clearly mapped. One postulate of cartography might be framed thus: "the map abhors disorder." The favorite subject matter of cartography is an ordered, clearly patterned and structured grouping of phenomena on the earth's surface. It is the structured arrangement of phenomena in a locality which makes it possible to employ abstract cartographic symbol-complexes to depict them. A dot may stand for so many units in a given segment of area; a line may stand for a continuous narrow phenomenon such as a railway or river; a bounded area may imply that within its borders a given quantitative class predominates, but elsewhere does not; and so forth.

Often, however, phenomena do not arrange themselves neatly; numerous classes may intermingle in an irregular and haphazard arrangem The map, in such instances, may serve only a limited purpose as a locational record, showing only the positions of individual features (if even that can be done macroscopically at a given scale). The characte of the distribution may make it impossible for structuring and groupin of features to be discerned from a map, either through the use of isopleths, bounding lines, shading, etc., or by direct inspection of symbol representing the individual features themselves. Yet disorder and structurelessness are scientifically as meaningful as order and regularity.

3. Mapped boundaries are often arbitrary and misleading. It would be interesting to inquire into the extent to which this failing in maps - the tendency to over-define regions by depicting overly concrete boundaries - has hindered the development of regional geography and jeopardized its assertions. Certainly there would be some sense in "plastering the earth" with regional descriptions if, indeed, we kept in mind the somewhat fluid nature of wet plaster instead of treating such studies as discrete pieces in a jig-saw puzzle. Unfortunately, the cartographic line-symbol is highly assertive; various means of symbolizing inter-regional gradations are available, but all (at preser are awkward and seldom used.

4. The map is a two-dimensional abstraction, and therefore fails in many cases to portray vertical relationships and stratification adequat

5. Maps visually suggest direct causal relations where none may exi The old cartographic tradition of superimposing cultural on natural features may have passively fortified the position of environmentalism such an obvious relationship as that often pertaining between settleme and relief, for example, can convince the unwary mind that the one follows the other in a direct causal line. However, co-variance in area evidently need not imply causal connection, except in the most devious, partial and contingent manner if at all. Maps, showing a few geographi

elements at a time, give us no clue as to "intervening variables" such as complex cultural factors.

6. Maps employ a limited number of symbols; each must be defined in words and generally signifies a complex notion which must be explained in words. The limit to the number of visual symbols and symbol-complexes available for mapping, and the fact that these symbols and their signification are defined and explained in words, appear to indicate that mapping is a subordinate language, conceptually simpler than, and logically dependent on, the language of words. We can, in fact, force a conception of any areal relationship or locational position through the use of words and numbers if we need to, however difficult and cumbersome it may be to do so.

* * * * *

The argument here is certainly not intended to minimize the importance of maps to the science of geography. My intention is simply to show that the map is useful as a tool and an illustrative device, secondary in importance to words though equally essential. Surely no one would sanction geographic work or writing of a substantive nature (except in the most unusual instances) which did not make the fullest use of maps. Only occasionally, however, can "cartographic communication" function as an independent research language, as the mathematical symbol-language does for mathematics and certain "exact" sciences.

Maps are perhaps the most important implement in the working geographer's tool-box, as a consequence of the subject matter and approach of this science. They are essential in geographic writing, if their meanings are properly explained and qualified in the text, because they can show distribution, locational change, and certain abstract notions of areal relationship and temporal change far more simply than words. In addition, they can serve as storehouses of an amazing amount of particular geographic information - cataloging phenomena locationally much as an encyclopedia does alphabetically. Since some of the limitations of "cartographic communication" may well be erased by further progress in the field, the language of words may be forced in the future to abandon some ground to the language of maps.

THE DOT PLANIMETER, A NEW WAY TO MEASURE MAP AREA

Walter F. Wood
State University of Iowa

A review of the geographic literature produced during the present century reveals a trend in the direction of more quantification of findings. Researchers, however, are sometimes frustrated in attempts to be quantitative because they do not have a really good method to measure areas represented on maps. This, fortunately, need no longer be true.

Most of us have, at times, made use of one of the many types of mechanical planimeters. A short time spent with the use of one of these instruments quickly reveals many of its shortcomings. First, the planimeter must be taken out of its box and assembled. Many models require the making of precise adjustments and the prior measurement of areas of known size to check the adjustment. When the planimeter is assembled and adjusted the operator is ready to measure the area represented on a map. He traces the boundary of the area with a pointer and in so doing causes a little wheel touching the map surface to turn as it moves in sympathy with the pointer. The wheel in turn activates a mechanism which is connected to a dial which records the area traced. This reading will be accurate if the operator has a very steady hand and traces the boundary with utmost care, and if the surface of the map is neither too smooth nor too rough, and if the area being measured is conveniently located far enough from the edge of the map to allow the little wheel to trace its course without running off the edge. There are other "ifs", but these are the most common.

Many researchers, either because of the prohibitive cost, or because of the inadequacies of the mechanical planimeter have tried other methods. The most common of these is the counting of squares. A grid constructed on transparent material is laid over the area being measured, and the small rectangles of known size lying entirely within the boundary are counted. Added to this number is the number of whole squares estimated to be equal in area to that of the partial squares also included within the boundary. The sum thus obtained is then converted to the desired unit of earth measure, such as acres or square miles. One can achieve a good measure of accuracy with this method, especially if he uses a relatively fine grid. Experience shows, though, that this method, too, has its drawbacks. Often operators are surprised to find that they get quite widely divergent area readings for areas known to be equal to each other but different in shape. Also the same area measured on successive days by the same operator may appear to have either grown or shrunk in the meantime. Some of the accuracy of this

method is dependent on the ability of the operator to make subjective estimates of the areas of partial squares. Perfection in estimating areas in this way is not possible because individuals do not always feel the same, and feelings are responsible, in part, for errors in subjective judgment.

What is clearly needed is a device which will overcome both the mechanically originated shortcomings of the mechanical planimeter and the psychological ones of the square counting method. This is accomplished by the dot planimeter. The principle underlying this device is both new and simple, and may be briefly stated thus: "The number of evenly spaced dots falling within a boundary is proportional to the area enclosed." The method employing this principle is best understood in terms of the device which uses it (Fig.1).

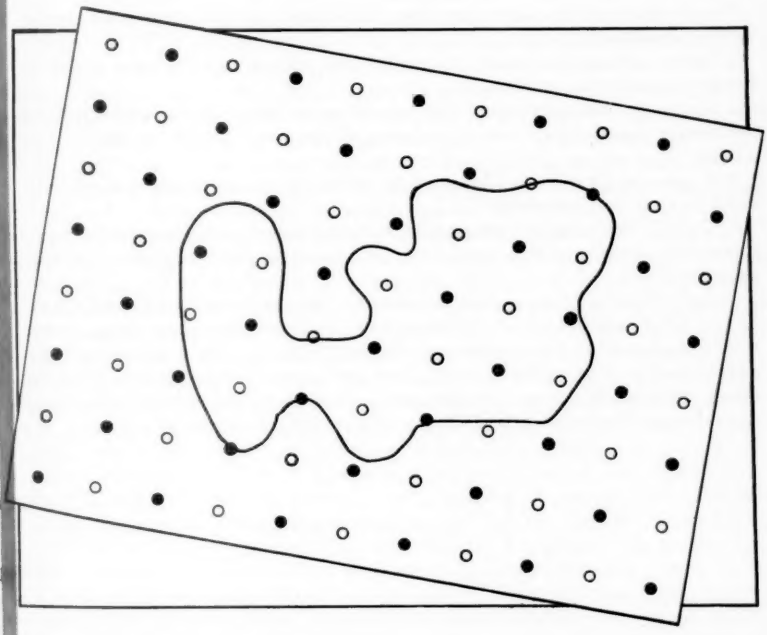

Fig. 1. A type symbol •, B type symbol o

Equally spaced dots of two different types are arranged alternately into horizontal and vertical rows on a piece of transparent material. This, in its simplest form, is a dot planimeter. In order to measure an area, all the operator need do is place the dot planimeter over the area to be measured and count the number of dots falling within the boundary. If a symbol of type A touches the boundary it is included in the count, but B type symbols are not counted. In Figure 1, twenty-one dots are in a position to be counted. The value of each dot is equal to the square of the space between them. Thus, if the dots are assumed to be an inch apart the measured map area may be said to contain twenty-one square inches. If the dots are spaced one half inch apart the measured area will be indicated as 5.25 square inches, and so on. A high degree of accuracy may be achieved by averaging several counts obtained from a coarse grid or a few counts from a finer grid. The resulting average may then be converted to units of earth surface measure.

The following are a few time-saving techniques which may be used where applicable:

1. More advanced models place the dots into groups of tens and hundreds for ease in counting.

2. Vertical and horizontal scales aid in mentally constructing a large rectangle containing a known number of dots with which to start the count.

3. A grease pencil may be used to check off the dots and groups of dots as they are counted.

4. Tables showing the maximum and average errors to be expected under all conditions are used as an aid in choosing an optimum spacing of dots.

This device makes the measurement of mapped areas practically as easy as the measuring of distance between two points on a map. Those who have used the dot planimeter experimentally under my direction agree that it is practically fool proof and gives better results than any other method. If anyone can see well enough to distinguish one type of dot from another and is able to count, success is assured.

ARITHMETIC-SQUARE ROOT GRAPH PAPER

J. Ross Mackay
University of British Columbia

Many types of graph papers, such as logarithmic, probability, and isometric paper, have been designed for special purposes and are frequently used in geographical analyses. Arithmetic-square root graph paper, which is best suited to plotting geographic data where square roots are involved, is one such type. The writer is not aware of any commercial source from which arithmetic-square root paper can be obtained but, even if it cannot be purchased, it is no more difficult to draw than many other special purpose graph papers. As its name implies, one axis is ruled arithmetically and the other with a square root scale, i.e. 1 is at unit distance of $\sqrt{1}$ from the origin, 2 at unit distance of $\sqrt{2}$, 3 at unit distance of $\sqrt{3}$, and n at unit distance of $\sqrt{n}$. Unless a precision parallel ruling device is available, probably the most satisfactory method of obtaining an accurate square root scale is to mark off the square root distances on closely ruled high quality graph paper. For most geographical purposes, an arithmetically divided Y-axis and a square root X-axis will be found to be the most desirable and such an arrangement is assumed in the following discussion.

Arithmetic-square root graph paper can be used effectively in "slope" studies which have generally been restricted to "landslope" studies. Landslope studies have been used successfully in morphometric analyses to detect peneplain remnants, abrasion terraces, and the like, and there seems to be no valid reason why a similar approach to many other types of geographical data that may be graphed in the same way should not also yield results of geographical interest. Descriptions of landslope curves can be found in some of the standard references in cartography (e.g. Raisz) and geomorphology (e.g. Wooldridge and Morgan)under the heading of hypsographoid or clinographic curve. In drawing such curves the total area above each contour on a topographic map is measured and then the radius of a circle with an area equal to the total area enclosed by each successive contour is calculated. The irregular contours of a topographic map can then be represented at appropriate scale by concentric circles enclosing equivalent areas. A topographic profile drawn through the center of the concentric circles will then give a generalized or averaged cross section of the land. The curve can then be examined for changes in gradient, because each break in slope must have some cause which may be of geomorphological significance.

In theory, the principle of slope analysis may be extended to all data mappable by isolines (isarithms and isopleths) and choropleths. The

areas lying above the different isoline or choropleth values may either be measured on maps or determined from statistical data. As with landslope curves, the radii of concentric circles that represent the areas above the successive isoline or choropleth values can be calculated and then slope curves drawn from them. Should any break in slope be present it should be investigated to determine if it has any geographic significance.

Arithmetic-square root paper is ideal for graphing slope curves. If area is scaled along the X-axis and the variable (e.g. altitude, precipitation, density) along the Y-axis, a slope curve can be drawn merely by connecting the points because the square root calibration gives the radii of the concentric circles of equivalent areas. The concept of vertical exaggeration does not enter into slope curves unless the units on the X-axis and Y-axis are expressable in similar units as in a topographic profile.

A number of slope curves can be drawn on the same graph thus facilitating comparisons among them. In general, slope curves are best used in research for detailed studies of relatively small areas such as counties rather than broad studies of large areas such as countries. However, slope curves for large areas can be used to illustrate broad relationships but it is unlikely that they will reveal relationships not previously known.

Arithmetic-square root paper has other uses besides that of slope analysis. The graph paper may be used to determine square roots but this in itself is little recommendation, because square roots are more accurately derived by other means. The paper can be used to obtain the relative sizes of two-dimensional symbols, such as circles and squares, whose heights are drawn proportional to the square roots of the numbers represented. The perpendicular distances from any numbers on the X-axis to an oblique line through the origin will give the proportionate sizes of symbols.

In conclusion, arithmetic-square root graph paper is well suited for certain special geographical purposes, particularly that of slope analysis. A great deal of statistical data can be plotted directly onto the graph paper and slope curves obtained without the necessity of drawing maps, measuring areas, and calculating square roots for slope profiles, examples being density of population and size of farms. The area for other types of data, such as precipitation and temperature, must be obtained by map measurements.

A CONSERVATIVE APPROXIMATION OF POTENTIAL AGRICULTURAL PRODUCTION OF SOME SAMPLE COMMODITIES ALONG RAILROAD RIGHT-OF-WAYS IN THE UNITED STATES

Arthur H. Doerr
University of Oklahoma

The average American, when travelling in Europe or Asia, is struck by the intensive agricultural use which is made of the land. One indication of this intensity of land use is the general absence of idle land. For example, even the railroad right-of-ways are cultivated or grazed up to the very edge of the ballast. The intensive cultivation and general absence of idle land is an indicator of high population densities characteristic of much of Europe and Asia.

To date large areas of highly productive land and a moderate population density have precluded the necessity of intensive agricultural use of the land in most areas of the United States. Indeed frequently the principal agricultural problem in the United States has been the disposal of farm surpluses. Will this condition always prevail?

A rapidly expanding population in the United States, an alarming contraction of arable land due to misuse, and a national policy of supplying overseas areas with food may radically alter our conception of agricultural land use in the future. We may be forced to farm present agricultural lands more intensively and to utilize, for farming purposes, other areas not now agriculturally productive.

Such a potentially productive area of idle land is to be found in the railroad right-of-ways of the United States. What is the potential agricultural productivity of these railroad right-of-ways? A partial examination of this question follows.

At the present time there are about 225,000 miles of railroad right-of-ways in the United States.[1] Since right-of-ways vary greatly in width, it is impossible to determine accurately how large an area might be cultivated or grazed. The author has arbitrarily selected fifteen feet as the width of potentially productive right-of-way. Using this arbitrary figure as a base it is estimated that there are approximately 411,000 acres available for agricultural purposes along the railroads of the United States. Admittedly some of the land is physically unsuited for agriculture. Much of the land is too stony, too cold, too rough, too wet, or otherwise unsuited for production of crops indicated in the examples which follow. Production estimates are made however, taking into consideration the fact that not all of the right-of-way acreage can be used for the production of a particular crop.

Right-of-way lands in the United States could produce about 2,500,000 bushels of wheat per year, assuming a per acre yield of fifteen bushels

1. "A Chronology of American Railroads," Railway Information Series Association of American Railroads, Washington, D.C., 1951, p.7.

and an area suitable for wheat cultivation equal to one-half the right-of-way acreage. Or, if corn were raised instead of wheat, more than 3,000,000 bushels of corn could be produced on one-third the right-of-way area assuming a yield of thirty bushels per acre. Further, over 30,000,000 pounds of cotton could be produced on one-fourth the right-of-way area if the production is 300 pounds per acre. Almost 1,400 head of cattle could be grazed if a very conservative carrying capacity of 30 acres per animal is assumed. This means that almost 10,000 sheep or goats could be grazed on the available area.

The above mentioned production figures are small when compared to the present agricultural output of the United States, but this food production wuuld satisfy the hunger of many people. For example, if wheat were produced along the right-of-ways 100,000,000 people could be fed for one day or 275,000 persons could be fed for one year if each person consumed 3000 calories per day.

In many ways the production figures cited earlier in this paper are unrealistic, since no mention is made of the problems which would be encountered in bringing railroad right-of-way land into agricultural production. Many difficulties would be encountered in preparing right-of-way land for cultivation. For example, thousands of miles of fences would have to be constructed at the cost of millions of dollars. In many places leveling, draining, and preparing the land for cultivation would be prohibitively expensive. The author does not wish to intimate that agricultural use of right-of-way land is imminent. In fact, this land may lie idle forever. The previous approximations of agricultural production serve to illustrate, however, by use of the railway example, how much additional food could be produced in this country if the occasion demanded it. Additional millions of acres are lying idle along highways, in abandoned fields, in home garden plots, and elsewhere. Obviously the total agricultural production of the United States could be expanded greatly if idle land were farmed and agricultural activities intensified.

MEETINGS OF GEOGRAPHERS IN JAPAN

Shannon McCune
University of Tokyo

The geographic profession in Japan, like its counterpart in the United States, is a small but active one. Since the end of World War II, it has had a considerable increase in numbers as new departments (some of them quite large) have been organized, older departments expanded, and new opportunities for geographers in government service (such as the Geographical Survey Institute) have developed. The Association of Japanese Geographers is the major professional society. In addition there are a number of regional organizations as well as some with special interests. Among these are the Geographical Society of Tokyo (which holds monthly meetings and publishes Chigaku Zasshi, the Journal of Geography), the Tohoku Geographical Association (centered at Tohoku University at Sendai, publishing a quarterly journal Tohoku Chiri, The Annals of the Tohoku Geographical Association), the Society for Human Geography and the Japanese Geographical Education Association. The last two societies and the Association of Japanese Geographers have recently held annual or semi-annual meetings and these are worthy of note by American geographers.

The Association of Japanese Geographers has been closely associated with the Institute of Geography of Tokyo University and the Department of Geography at Tokyo Educational University (formerly Tokyo Bunrika University). The Association, however, encompasses a much larger group than the graduates of these two universities in its membership and serves as the representative group for the geographic profession in Japan. The recently published directory lists some 1,000 members. It publishes Chirigaku Hyoron, The Geographical Review of Japan; 12 monthly issues, plus two special issues, will appear in 1953.

The Association held its fall meetings at Yamagata University on October 10 and 11, 1953. Formerly a normal school, Yamagata in the post-war educational reorganization has been given university status. Though it is located in an interior basin in northern Honshu some 400 geographers congregated for the meetings. Most of the older geographers stayed in inns in Yamagata or nearby towns; younger geographers and students were given lodgings in the university dormitories. The University went to great lengths to furnish facilities and hospitality and arranged some interesting displays of maps and other materials on the local area.

The day before the meetings a several public lectures were given in nearby cities by a few of the leading Japanese geographers. These were

on topics of their specialization and were well attended by high school pupils and the general public; they helped spread geographic knowledge and created an awareness of the geographic profession. After the sessions, there were planned field excursions to three different areas: a volcanic area, Mt. Zao, for those interested in physical geography, the Yonezawa Plain for those interested in human and settlement geography,and Tobishima,an isolated island in the Sea of Japan.The island trip was organized by the Society of Island Geography. This is a new and active group of geographers who have done more than study islands, for they were instrumental in bringing the economic plight of the people on off-shore and remote islands to the attention of the public and the government. The expenditure of recently appropriated funds for the economic development of these islands is being programmed with the help of some of these geographers.

The Association's meetings were held in four or five concurrent sessions. There were many papers: 17 in physical geography, 19 in urban and industrial geography, 25 in land use and agrarian geography, 24 in settlement geography, and 12 papers on historical geography. Many of these were short papers dealing with small areas or special topics. The time limits set, 20 to 30 minutes including discussion, were rigidly maintained. Most of the papers were given informally from notes; they were illustrated by maps or charts pinned on elevated boards, unfortunately these maps were not always legible. All but three of the papers dealt with Japanese topics or areas. Many of the papers discussed research in progress rather than finished results. It is estimated that only a fourth of the papers will ever be published. However, the abstracts, printed in a special publication of the Association, will be useful for reference.

On the first evening a series of informal symposia on industrial geography, island geography, land development, area studies, etc., were held. On the second evening, the older geographers and a few younger members adjourned to a nearby hot springs resort hotel where, after hot baths, the annual banquet was held in a relaxed atmosphere. The younger geographers and students held an informal session of their own at the same time. At the banquet though there were welcoming speeches, there were no long discourses; local dancers provided the entertainment.

The Society for Human Geography, another important professional organization, though with more specialized interests than the Association, has had its focus in the Geographical Institute of the Faculty of Literature at Kyoto University. After some reorganization, following the war, it started publishing a new quarterly journal, Jimbun Chiri, Human Geography. In addition, it publishes some other materials; especially valuable and noteworthy is the recently published Chirigaku Bunken Mokuroku 1945-1951, Bibliography of Geographical Literature 1945-1951. This lists some 3,000 titles of articles and books which have been published in the post-war period in Japan in geographic and other publications.

For the annual meeting of the Society on November 1, the Geographical Institute had prepared a fine display of old maps of Japan, including many original and unique copies. The meetings were held in two concurrent sessions with about 20 papers in each. The manner of giving the papers was similar to that at the Yamagata meetings. There were about 300 to 400 persons in attendance. A number of other learned societies, e.g. political science, history, and archaeology, were also holding their meetings at Kyoto at this same time. The day before the Society held its sessions, there was a meeting with 17 papers read at Ritsumeikan University, also located in Kyoto. On the day after the sessions, geographers could go on a field excursion to a noted historic palace or attend a memorial meeting for the late Dr. Takuji Ogawa, the founder of geographic work at Kyoto. He is famed not only for his work in historical geography but as the father of four noted sons, including Hideko Yukawa, the Nobel Prize winner in physics. On the morning of November 3, the Kyoto University Geography Alumni held a discussion session where a few longer papers were read and discussed; in the afternoon after a short excursion, they attended a dinner at a resort inn near Kyoto.

The Japanese Geographical Education Association held its annual meetings at Tokyo Educational University on November 14 and 15. The members of the Association are mainly teachers in secondary schools and educational colleges or universities. There were about 150 persons in attendance, most of them from the Tokyo Area. Twenty-three papers were read during the sessions which were spread over two days and conducted at a leisurely pace with plenty of time for discussion. Panel sessions on methodological and curriculum problems were also held. There is quite a bit of controversy over how satisfactorily the post-war instituted social studies courses, in which some geography is included, are developing. The place of geography in newly developed general education programs on the college level is also a matter of some concern to Japanese geographers. The Association publishes an occasional journal, Shin Chiri, New Geography, with the same name as a previous journal.

The number of papers read at these varied meetings and the relatively large number of attendants, particularly of younger persons, reveal some of the vigor with which professional geography in Japan is progressing. There will be published shortly in Chirigaku Hyoron, The Geographical Review of Japan, a series of articles reviewing the present status of geography in Japan. Jimbun Chiri, Human Geography, has published the last two years an annual summation of geographic research. American geographers will find it worthwhile to subscribe, either personally or through their libraries, to the professional geographic journals, all of which now have English abstracts. Thus they may maintain contact with the development of geography in Japan even if they cannot attend the meetings.

NEW PUBLICATIONS

Amazon Town, Charles Wagley. The Macmillan Co., 60 Fifth Avenue, New York 11, New York. $5.00.

A professor of Anthropology at Columbia University presents this study of man in the tropics in a popular, readable style, but the analysis of facts and addition of first-hand information makes it a significant case study of underdeveloped tropical humid areas.

Boletin do Instituto Joaquim Nabuco, Vol. I., No. 1, 1952, Ministério da Educação e Saúde, Recife, Brazil.

This journal is intended to cover sociological, economic, geographic, anthropolitical, and statistical studies related to agricultural developments in Northern Brazil. The first issue is in three parts:
1. Documentario; 2. Colaboração; 3. Noticiário (Books and reviews).

Census of the Americas, 1950, No. 3, El Salvador. R.I.Glubin and F.W. McBryde, Office of the Coordinator, International Statistics, U.S. Bureau of the Census, Washington 25, D.C. 10¢.

This release as a Business Information Service pamphlet deals with urban area data for El Salvador. Statistics, based on the census of June 13, 1950, show the total and urban population by sex, for departamentos, distritos, and municipios having 2,500 or more urban inhabitants.

Collier's World Atlas and Gazetteer, Rand McNally Edition, October, 1953. 11 1/4 x 14 1/4 in. $17.50.

Rand McNally of Chicago and the P.F.Collier & Co., Division of the Crowell-Collier Publishing Co., New York, are co-publishers of this distinctive new atlas. There are 128 pages of full-color maps from the Rand McNally Cosmopolitan Series, with the addition of marginal indexes to show the location and population of cities and towns right beside each map. Special Collier's articles describe the countries of the world, the United States and its possessions, and the individual states in the United States. A gazetteer-index of 165 pages, with an alphabetical list of more than 75,000 place names, includes not only the usual brief data on location and population, but also descriptive paragraphs on more than 5,000 places.

Directory of Northwest Resource Organizations, Department of Natural Resources, Oregon State College, Corvallis, 1953.

This directory of organizations with direct responsibility for management and development of Natural Resources in the Northwest, was completed from questionnaires returned by the organizations. Funds for re

search assistance and publication were provided by the Ford Foundation. In its 135 pages the directory brings together many pertinent facts about each organization, such as correct name, headquarters address, purpose, nature of membership, offices, area of operation, branch offices, research programs in progress, public service projects, publications available etc. It covers Federal and regional organizations, as well as private and State agencies operating in Alaska, British Columbia, Idaho, Montana, Oregon, and Washington. The principal subject fields covered are agriculture, fish and game, forests and wood processing, gas, land and range management, minerals, recreation, water power, and general resource development.

Members of the AAG should send 12¢ in postage to cover mailing costs from the Department of Natural Resources. A copy will then be sent without charge.

A Geography of Europe. Edited by George W. Hoffman. The Ronald Press Co., New York, 1953. $7.50.

This college text combines the work of ten American, Canadian and European geographers. It features the regional approach, dividing Europe into seven basic areas and providing some background in both historical and physical geography. There are 155 illustrations, 66 maps, and 30 tables illustrating the text.

Map of Middle East Oil, 4th edition. The Oil Forum, Salmon Tower Building, 11 West 42nd Street, New York 36, New York. 38 x 50 in.

Covers more area and provides more detailed information than the 1949 edition by means of large scale insets. Concessions and licenses, oil fields, gas fields, pipelines, pump stations, topping plants and refineries, stabilization plants and loading ports are shown. American and British holdings are clearly identified. $10 in folder, $12 rolled.

The Nebraska Question 1852-1854. James C. Malin. Lithoprinted (455 pages, paper cover) and sold by author, 1541 University Drive, Lawrence, Kansas. 1954. $4.00.

This is a fresh interpretation from new materials and will be of special interest to those specializing in historical, political, or regional geography.

Physiological Objectives in Hot Weather Housing. Douglas H.K.Lee. Published by the U.S. Housing and Home Finance Agency. Government Printing Office. 45¢.

This 77-page study was prepared by the professor of physiological climatology at the Johns Hopkins University for use in connection with shelter improvement work in underdeveloped countries participating in the Technical Cooperation Program. The booklet covers such topics as Hot Environments for Man, Basic Climatology of Tropical and Sub-

tropical Regions, Housing in Hot-Dry Environments, in Warm-Humid Environments, and Modifying Effects of Climatic Fluctuations. Most emphasis is placed, however, on principles, the observance of which would minimize the direct effects of hot environments upon man insofar as housing and shelter can do this.

Resources and the American Dream, including a theory of the limit of growth. Samuel H. Ordway Jr., 4 1/2 x 7 1/2 in. The Ronald Press Co., New York. 1953. $2.00.

This essay of 55 pages focuses primarily upon the problem of expanding industrial consumption of resources. Written by a lawyer, it attacks the Cornucopian belief that the earth is a never ending storehouse and that technology can satisfy our dream of an ever higher standard of living. The author argues that limits of economic expansion can be reached, and that free enterprise can voluntarily make the necessary adjustments to bring consumption into balance with supply.

Vegetation and Watershed Management. E.A.Colman. The Ronald Press Co., New York. 1953. $7.00.

This volume was prepared by the Chief of the Division of Forest Influences Research, California Forest and Range Experiment Station, U.S. Forest Service, under sponsorship of the Conservation Foundation. It indicates how proper management of vegetation can augment ground water supplies, check soil erosion and siltation, and reduce flood peaks. There are also valuable summaries showing what has been achieved as well as the further research needed before vegetation management can be widely applied.

Westward Ho with the Albatross, Hans Pettersson. E.P.Dutton Co. Inc., 300 Fourth Avenue, New York 10, New York. $4.00.

The leader of the Swedish Deep-Sea Expedition of 1947-48 gives an account (in English) of the 15 month expedition which covered 45,000 nautical miles through the Atlantic, Pacific and Indian Oceans. Many interesting pieces of specially designed equipment are described and pictured. Oceanographic, geological, zoological and botanical findings are also blended into a travelogue that includes ports of call, interesting people, and sights encountered during the expedition.

World Geographic Atlas, a composite of man's environment. Edited and designed by Herbert Bayer. Published by the Container Corporation of America, 38 South Dearborn Street, Chicago, Illinois. 1953. 286 pp. $25.00.

The atlas is a large beautifully designed composite of colored maps by Rand McNally & Co., and by the Instituto Geografico de Agostini (Novara, Italy) and many of the illustrations are adapted from leading texts.

World Guide. Rand McNally & Co., Chicago. 1953. $6.95.

By arrangement with the Columbia University Press, this publication constitutes an abridged version of the Columbia Lippincott Gazetteer of the World. The selected and adapted articles are not merely dictionary entries. For each country there is a fairly comprehensive, descriptive article followed by articles on cities, towns, rivers etc. within that country. Several columns are devoted to the larger cities and city center maps are frequently included. A complete index includes, in addition to places for which there are individual articles in the book, other places mentioned in the articles and about which significant information is also given.

THE NATURE OF GEOGRAPHY
Richard Hartshorne

Copies of the 4th edition may be obtained from the Central Office, of the AAG, The Library of Congress, Washington 25, D.C. The price is $2.00 plus 20¢ for handling in the United States, and 25¢ for handling in other countries.

In order to aid students, as in the past, this volume is published by the Association and sold at cost, with no royalties to the author.

ANNOUNCEMENTS

PREDOCTORAL FELLOWSHIP OF SIGMA DELTA EPSILON GRADUATE WOMEN'S SCIENTIFIC FRATERNITY $1,400

Applications for the year 1954-1955 should be submitted before February 1, 1954, to the Fellowship Board authorized to make the award of the fifth Sigma Delta Epsilon Fellowship.

Women with the equivalent of a Master's degree, carrying on research in the mathematical, physical, or biological sciences, who need financial assistance to complete work for the doctorate and give evidence of high ability and promise are eligible. During the term of her appointment the appointee must devote the major part of her time to the approved research project, and not engage in other work for remuneration (unless such work shall have received the written approval of the Board before the award of the fellowship).

Application blanks may be secured from Dr. Esther S. Anderson, Geography Department, University of Nebraska, Lincoln 8, Nebraska. Announcement of the award will be made early in March.

THE POPULATION COUNCIL, INC. FELLOWSHIP PROGRAM

A new organization, The Population Council, Inc., has recently been established as a non-profit corporation in order to encourage research and education concerning the relationship of the world's population to its material and cultural resources.

The purpose of The Council's fellowship program is to assist in the advanced training in the study of population of students in the social and natural sciences at the predoctoral or postdoctoral levels. The Council is planning to grant approximately six fellowships (for study in the United States and elsewhere) during the academic year 1954-195 to be divided between students from the United States and from other countries. Fellows will normally receive support for full-time work for a period of about one year. The basic stipend at the rate of $2,500 per year may be supplemented to provide for maintenance of dependent and especially in the case of foreign students, for travel or exceptional expenses. It may be diminished to take account of lesser needs or part support from other sources. Somewhat larger stipends may be granted to postdoctoral than to predoctoral fellows. Preference will be given to candidates who are not over forty years of age.

For information or application forms inquiries should be addressed to Mr. Frederick Osborn, Executive Vice-President of The Council, 230 Park Avenue, New York 17. Applications for fellowships for the academ year 1954-55 should be received before February 1, 1954.

FACULTY FELLOWSHIPS

The Fund for the Advancement of Education is again offering approximately 250 Faculty Fellowships for the academic year 1954-55.

The awards will be made to able younger teachers throughout the country who show exceptional promise and who wish to broaden their qualifications for teaching their respective fields as part of a program of liberal education.

Fellowships are available in the humanities, the social sciences, and the natural sciences but not in technical or professional subjects. Candidates may propose such plans for study during their fellowship year as the exploration of fields related to their major interest, a study of the historical and philosophical foundations of their fields, the analysis of the aims and contents of courses and other instructional problems, or internships under supervision in promising programs of undergraduate education. The above list is not meant to be exhaustive, and the National Committee will consider seriously any proposal which aims at broadening and improving the candidate's capacity to make his work a more vital part of liberal education. Because of this special purpose, the fellowship program is not intended to provide for the completion of doctorate study as such, or support private and individual research projects, except as they bear directly upon and are subordinate to the effort to improve the candidate's teaching. Proposals requiring extensive travel and a large number of relatively short visits to many institutions as well as proposals which limit the candidate largely to his own campus are generally discouraged.

Each Faculty Fellowship provides a grant approximately equivalent to the salary of the recipient at the time of application plus certain expenses which in the opinion of the Committee are essential to his plan of study. When Sabbatic leave is available, only a supplementary grant will be made by the Committee. No money will be provided, moreover, for transportation outside the United States. Candidates shall be men or women between the ages of 30 and 45 who have been teaching steadily for several years. Each candidate must be nominated by his institution. In each case, the institution nominating a candidate must agree to continue the recipient in his teaching career in 1955-56, and, if possible, should replace him during his year as a Fellow.

The awards will be announced on or about April 8, 1954. Forms for use by candidates and forms to be filled out by the President or other authorized officer may be obtained from the office of the Fund. These should be submitted together by the appropriate officer of the institutions no later than January 31, 1954 and addressed to the Committee on Faculty Fellowships, The Fund for the Advancement of Education, 575 Madison Avenue, New York 22, New York.

FORD FOUNDATION SCHOLARSHIPS for SOVIET AND EAST EUROPEAN STUDIES

In keeping with its policy of supporting activities which may contribute to international understanding, the Ford Foundation is initiating a program of scholarships for young men and women of ability to begi or continue study of the Soviet Union or the peripheral East European areas.

The Foundation will make awards of three types: (a) Graduate Area Training Scholarships (under age 31); (b) Pre-doctoral Area Research Training Fellowships, and (c) Post-doctoral Area Research Training Fellowships,((b) and (c) under age 36). Awards will normally be for one calendar year. In fixing the stipend, consideration will be given to the applicant's qualifications, experience, family status, other sources of support, special expenses to be incurred, etc. Further information and application forms are available from The Ford Found tion, Overseas Training and Research, 575 Madison Avenue, New Yor 22, New York.

MARSHALL SCHOLARSHIPS

Marshall Scholarships were established to "express the United Kingdom's gratitude for the generous and far-sighted Program for Europe Recovery." Twelve will be competed for annually by United States gra uate students of either sex. Candidates must be under 28 years of age in the year in which the award will be taken up and must be graduates of a degree-granting college or university of the U.S., accredited by the appropriate U.S. regional board.

The scholarships will be tenable at any university in the United Kingdom. Made for two years in the first instance, they may be extended for a third year. The value of a Marshall Scholarship will be £550 ($1,540) a year, with an extra £200 ($560) a year for married men. The basic stipend may be raised to £600 a year, since the cost of livin at British universities may vary. Scholars will receive travel betwee their homes and their university in the United Kingdom.

NATIONAL ATLAS OF INDIA

Professor S. P. Chatterjee, Head, Department of Geography, Calcutta University, presented to the Planning Commission of the Government of India a plan for a National Atlas of India. The plan was passed along to the Ministry of National Resources and Scientific Research, which appointed a board of eight members to activate the project. It is to cover topography, geology, hydrography, pedology, climatology, flora and fauna, fisheries, land utilization, food and agriculture, animal husbandry, dairying and horticulture, irrigation and power, village and small-scale industries, mineral industry, manufacturing industries, transport and communications, demography, settlement and building patterns, secondary essentials of life (health, education, language, entertainment, travel, etc.), political boundaries, and archeology.

RESEARCH ASSISTANTSHIP
UNIVERSITY OF MARYLAND

The Geography Department has available for the second semester, beginning February 1, 1956, a part-time Research Assistantship. The position requires 18 hours of work per week for the Department. Part of this time is to be devoted to some work in the Department Library, part to research pertaining to fish and forest resources. Ability to handle German, French, Spanish, or Russian is desirable. Applicants should preferably have the M.A. degree in geography. Qualified persons who are working for a Ph.D. in geography at other universities, and who find it desirable to spend part of a year in the Washington area for research in the Libraries of this area, will be given serious consideration. The stipend is $220 per month, not including remission of tuition. Make application to the Department Chairman, William Van Royen.

MID-CENTURY CONFERENCE ON RESOURCES FOR THE FUTURE

The Conference on Resources for the Future was held in Washington, D.C. December 2-4. It was financed by the Ford Foundation and attend by 1,472 people from many walks of life.

Most of the work of the Conference was done in eight Sections meeti concurrently on various aspects of the resources problem. These were

1. Competing demands for use of land. Charles C. Colby, Chmn.
2. Utilization and development of land resources. Lloyd E.Partain,Ch
3. Water resource problems. Gilbert F. White, Chmn.
4. Domestic problems of nonfuel minerals. Evan Just, Chmn.
5. Energy resource problems. Farrington Daniels, Chmn.
6. U.S. concern with world resources. Edward S. Mason, Chmn.
7. Problems in resources research. Earl P. Stevenson, Chmn.
8. Patterns of cooperation. H. Christian Sonne, Chmn.

BOSTON MEETING, AAAS SECTION E

Geographers found much of interest and significance in the program of Section E (Geology and Geography) of the AAAS at Boston, Decembe 28-30.

With Thorndike Saville presiding, outstanding geographers, geologist engineers, public administrators and educators pooled their experienc and their several approaches to the imminently critical problem of Water for Industry.

Victor Roterus organized and presided over a symposium on The Me ropolis. The papers: Lloyd Rodwin - Functions of the Metropolis; William Applebaum and Howard L. Green - Distribution of the Comme cial Function in the Metropolis; Wayne Daugherty - Residential Pat- terns of the Metropolis; John T. Howard - The Spacing of New Growth. Raymond Murphy and John Gaus lead the discussion.

Papers for the general geography session included: Lester E. Klimm The Empty Areas of New England; Trevor Lloyd - Iron Ore Productio at Kirkenes, Norway; George K. Lewis - Delineation of Homogeneous Residential Neighborhoods; Saul B. Cohen - Current Prospects for a Balance of the Earth's Geopolitical Forces; Albert S. Carlson - New Sources of Water for New England.

Retiring Vice-President Arthur C. Trowbridge addressed the Sectio smoker, December 30 evening, on Mississippi River and Gulf Coast Terraces and Sediments as Related to Pleistocene History - A Proble

PERSONAL NEWS

ALBERT G. BALLERT left the Chicago Plan Commission November 15 and took a position in the Sales Planning and Analysis Department of the Ford Motor Company. He will be engaged in a project to study some sixty metropolitan areas in the U.S. He will continue to handle a home study course entitled "Geography and World Affairs" at the University of Chicago. He has just completed a new syllabus for the course.

FRED W. FOSTER and family left the University of Illinois for Egypt August 28 to spend a year on research there under a Fulbright Grant.

ROBERT B. JOHNSON has just returned from an eight-month stay in the Far East as an Operations Analysis Consultant to Headquarters, Far East Air Forces. He plans to return with his family to take a position for the next two years as Chief Analyst of the Operations Analysis Office, Headquarters, FEAF. While in the Orient he travelled fairly extensively in Central Honshu and in Korea.

TREVOR LLOYD, Dartmouth College, is studying, with the support of the Office of Naval Research, the reconstruction of Arctic Norway where some 70,000 Nazi soldiers carried out a "scorched earth" policy, destroying every vestige of human habitation as they retreated before the advancing Russians in 1944-45. It is hoped that plans to rebuild, modernize and expand the economy there may be helpful in planning the development of Arctic North America.

GLENN T. TREWARTHA, University of Wisconsin, will go to the University of Cambridge in England in January as visiting professor of geography under a Fulbright grant. He will lecture during the winter and spring terms at Cambridge, following which he plans to travel extensively, visiting schools of geography both in Britain and on the continent.

H.A.MARMER died November 5, 1953. Mr. Marmer was Chief of the Division of Tides and Currents, U.S. Coast and Geodetic Survey until his retirement due to ill heahth in August, 1953. He joined the Survey in 1907.

NEWS FROM GEOGRAPHIC CENTERS

BIHAR GEOGRAPHICAL SOCIETY

In May, 1953, the Bihar Geographical Society was organized by a group of Indian geographers with headquarters in the Department of Geography, Patna University, Patna 5, India. It is hoped that the Society will publish a journal, beginning in the near future. Membership fees for ordinary members are Rupees 8 per annum plus an entrance fee of Rs. 1. (1 Rupee equals about 21¢).

LOS ANGELES GEOGRAPHICAL SOCIETY

The Los Angeles Geographical Society, came into formal being on June 5, 1953. Establishment of this group reflects the expanding significance of professional geography on the campuses of the colleges and universities of the Los Angeles Lowlands. The Society is an outgrowth of an informal discussion in the early autumn of 1952, between Richard F. Logan of UCLA and John W. Reith and David W. Lantis both then of the University of Southern California.

The Society had its beginnings as an informal monthly get-together, known as Geographers of Metropolitan Los Angeles, with Dr. Lantis as acting chairman. The first meeting, held on the campus of the University of Southern California, November 7, 1952, was announced in the January 1953, P.G. At a meeting on May 8, the need for a more unified organization was recognized and a temporary Council was selected. An organizational meeting was held on June 5, 1953, with Mr. Durrenberger presiding. The constitution was approved, and the following were elected to the Council: David W. Lantis (Los Angeles City College), president; John W. Reith (University of Southern California), vice-president; Miss Barbara Beardslee (Compton City School) corresponding secretary; Miss Jeanne Garrison (El Camino College), recording secretary; Miss Hazel Gehrum (Los Angeles County Schools) treasurer; and Edward T. Price (Los Angeles State College), George M. McBride (University of California at Los Angeles), Arthur Carthew (Los Angeles City College), and Willard Smart (Inglewood industrial engineer), members-at-large of the Council.

The first monthly lecture in a 1953-1954 lecture series was held October 8 at the University of Southern California. Miss Kirsten Walla of the library staff, UCLA spoke on "A Survey of Norway", which she illustrated with colored slides. On November 13 Dr. H.L. Kostanick of UCLA spoke on "The Middle East - Problem Area". Around 100, the largest audience to date, were in attendance. At the third lecture meeting, December 11, the speaker was William H. Wake of UCLA who spoke on "India". He had spent much of 1953 in India in field activities for his doctoral dissertation. The Society's first field trip, into the Santa Monica Mountains, was held on November 22, under the leadership of Richard Logan, of UCLA. Thirty-five persons were in attendance.

The Society is a non-profit organization devoted to the advancement and utilization of geographic knowledge, and hopes to foster a better appreciation of geography by the residents of the Los Angeles Lowlands. Membership is open to anyone with a sincere interest in this field of knowledge, although control of the Society is vested in professionally trained geographers. In addition to lectures, field trips will be held at irregular intervals. Projects considered, but for which plans remain indefinite, include a journal, television programs, and a color slide exchange. As yet, the Society lacks a permanent home, although interested persons may contact officers of the organization or write to 409 Founders Hall, University of Southern California, Los Angeles 7.

UNIVERSITY OF MARYLAND

The late W.L.G.Joerg, who was Consulting Professor in Historical Geography, left his entire library to the Department. The books constitute a substantial addition to present holdings. It also has been possible to purchase for the Departmental Library series of several foreign geographical periodicals, as well as a large number of books.

William Van Royen spent the summer in Europe under the auspices of the University of Maryland Overseas Program. He offered a course in the Geography of Europe in Wiesbaden, Germany, and gave a series of lectures on the Geography of Mineral Resources to officers of A.F. Headquarters. He held a number of conferences with the other geography instructors in the Program and visited several of the teaching centers of the University. During part of the summer he travelled in Germany, the Netherlands, and Switzerland.

David S. Simonett, from the University of Sydney, Australia, is an Instructor this year. Mr. Simonett has done extensive field work in Australia, especially in Queensland. He has published on sand dunes, on the relations between climate and corn yields on the Atherton tableland, on climate and cattle production, and on sugar production. His Ph.D. dissertation dealt with land utilization in North Queensland. He is particularly interested in seeing something more of soils, morphology, and agricultural production in the United States.

David Firman has returned as Instructor after a year on a Fulbright Fellowship in India. He did field work in the upper and middle Gangetic Plain, especially in Uttar Pradesh and Bihar, on the relationship between irrigation conditions and land use, travelling by jeep for nearly eight months, often under very difficult and trying conditions of road and weather.

Walter Deshler is still in Africa. He has received a Fulbright renewal, and is continuing field work in the Karamjoa area of northern Uganda. He, his wife, and young daughter have for months been the only white people in this region. Besides travelling for field work, he goes hunting in order to supplement their diet of canned foods and tough local beef and goat meat. He is frequently called upon to do some doctoring, which

may run from treatment of malaria to taking care of cuts or simple fractures resulting from some native disagreement.

Colbert C. Held, of the Department of Geography at the University of Nebraska, has joined the Staff of the University of Maryland Overseas Program for a year. He is teaching at the Rhein-Main Air Base and in Frankfurt.

Elmer F. Ahlmann, of the Milwaukee Division of the University of Wisconsin, has joined the Staff of the North Atlantic Program. He has taught at Harmon, Newfoundland, and is now teaching in Thule, Northern Greenland.

Clayton E. Whipple, Consulting Professor, has recently been appointed Deputy Administrator, Foreign Agricultural Service, U.S. Depattment of Agriculture.

Ching-Chieh Chang, Research Assistant and Graduate Student, has been awarded a fellowship by the TsingHua Foundation, to conduct field work in Mexico and Cuba in connection with his doctoral dissertation on Chinese Population in Latin America.

Mohammad H. Alta'i, who was awarded the Ph.D. in June, 1953, and returned to Iraq last summer, has been appointed to the position of Assistant Dean of the College of Arts and Sciences in Baghdad. He is also Acting Head of the Geography Department.

The Geography Section of the Maryland State Teachers Association held a meeting at the Department. In the morning a round-table discussion on the Near East was held under the chairmanship of Clayton E. Whipple, and in the afternoon a talk on transportation in Maryland by Donald Patton was followed by a discussion on how to provide better materials to the teachers throughout the State on the Geography of Maryland and adjacent areas.

UNIVERSITY OF MYSORE, INDIA

The College of Commerce of the University of Mysore, started in 1943, celebrates its tenth anniversary by moving into its new quarters. On this occasion, friends of the University appeal to the Members of the Association of American Geographers to donate books for the Library of the College of Commerce. Particular interest is expressed in books dealing with the origin and growth of business and industrial concerns with problems of economic and industrial geography and associated fields. Books may be sent to Ramnarayan Chellaram & Sons Charitable Trust, P.O.Box 34, Bangalore 2, South India.

WEST LAKES CARTOGRAPHY GROUP

Informal meetings of AAG members interested in cartography have been held in the West Lakes area from time to time. The most recent meeting was held December 29 at the Skokie Plant of Rand McNally Company to discuss possibilities of promoting a serial map publication as an outlet for unusual maps produced in academic centers of the West Lakes area.

MIAMI UNIVERSITY

Henry Kendall is still as busy as ever editing The Annals as well as working on a book concerned with the Northeast United States. He continues on the National Research Council Committee on Geography, Advisory to the Office of Naval Research. He attended the Mid-Century Conference on Resources for the Future, held in Washington, D.C. December 2-4. John Thompson is the cartographer and economic geographer. He is now completing his dissertation which is concerned with industry in the Miami Valley, for a doctorate from Wisconsin. Robert Perry, who came to Miami in 1950, is on a two year leave of absence completing doctoral work at Clark. Malcolm Murray came to Miami from Syracuse in 1952. Regionally his specialty is North America and topically Medical Geography. At the present time he is completing a dissertation in medical geography for a doctorate from Syracuse.

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DIVISIONAL NEWS

GREAT PLAINS - ROCKY MOUNTAINS

The annual meeting and field trip was held October 16 - 17 at Nebraska State Teachers College in Chadron, Nebraska, with Alvin M. Johnson serving as host and program chairman. A banquet was held Friday evening in the college cafeteria and a business meeting and program followed, with President H. Bowman Hawkes presiding. Dr. William T. Miller, Chairman, Division of Social Sciences at NSTC presented an excellent series of kodachromes covering the Pine Ridge, the Badlands, the Sand Hills, the Scottsbluff area, and the Mirage Flats Reclamation Project. Dr. H. Bowman Hawkes, Chairman, Department of Geography at the University of Utah, presented a paper on the "Livestock Industry of the Pacific Southwest".

In the business meeting Alvin M. Johnson, Nebraska State Teachers College at Chadron, was elected president for 1953-54 and Albert Smith, University of Colorado, was elected secretary and program chairman. The invitation of the University of Colorado to hold next year's meeting there was accepted.

On Saturday, field trips were conducted in the Chadron-Hot Springs area with the aid of officials of the Department of Agriculture, the Soil Conservation Service, the Bureau of Reclamation, and the Public Health Service. The forenoon was spent in a survey of The Mirage Flats Irrigation Project along the Niobrara River. After lunch a study of native grasses and of rangeland conservation was made in the Chadron area on the Pierre Plains. An inspection of Angostura Dam on the Cheyenne River near Hot Springs, South Dakota, completed the field trips. Some of the group spent a part of Sunday in the Black Hills.

Geographers attended the conference from Utah, Colorado, Kansas, South Dakota, and Nebraska. The largest delegation was from the University of Nebraska at Lincoln. One foreign geographer, Dr. Alexander son from Stockholm, Sweden, was in attendance. Statistics as to man-miles travelled for and during the meetings were gathered by Elbert E. Miller for the University of Utah.

To meeting - 13,480
Field Trip - 8,000
Returning - 13,480
34,960 total miles travelled.

NEW ENGLAND

The 27th annual meeting of the New England Geographical Conference was held in New Hampshire with the Geography Department of Dartmouth College as hosts on October 3 and 4. The weekend combination of local field trip work and an introduction to the Dartmouth Northern Studies Program was attended by 104 people.

The group assembled at Sunapee State Park at noon on Saturday. Dr. Carlson of Dartmouth described the geography of the area as it spread out before the group after an ascent up the mountain by chair lift. Stops were made on the trek to Moosilauke Ravine Lodge to see additional local features. During the evening program, Dr. Lloyd outlined the Northern Studies Program and Commander Nutt showed movies of three Labrador field seasons.

Sunday morning the group toured the Baker Map Library with Curator of Maps, George Dalphin. Dr. and Mrs. Stefansson graciously introduced the group to the Stafansson Arctic Collection. Special exhibits were viewed in the Geography Department where Dr. Huke presented an illustrated lecture on Burma. At the Business meeting, presided over by retiring President George Rumney of the University of Connecticut, the following officers were elected for 1953-54:

President	Trevor Lloyd	Dartmouth College
Vice-President	Herold Wiens	Yale University
Secretary-Treasurer	Minnie Lemaire	Mt. Holyoke College
	State Vice-Presidents	
Connecticut	Joseph B. Hoyt	New Haven State College
Maine	Lawrence Goldthwaite	University of Maine
Massachusetts	George K. Lewis	Boston University
New Hampshire	Donald Chapman	Universiry of New Hampshire
Rhode Island	William McIntyre	Lockwood High School
Vermont	Florence Woodard	University of Vermont

Even after the business meeting, some intrepid souls under the leadership of Dr. Carlson continued on a field trip to visit the water power development of the Connecticut River in the Hanover area.

MIDDLE ATLANTIC DIVISION

In response to opinions expressed by the membership in their repli to the Division questionnaire, the first annual meeting of the Division attended by approximately 160 members and guests, was held in the National Academy of Sciences Building in Washington, D.C., on Dece ber 12. This meeting was organized with the cooperation and assistance of the Division of Earth Sciences of the National Research Council. The primary purposes of this first meeting were: (1) to encourag members of the Division to report on their research (seven response were received); and (2) to listen to and discuss invited papers.

Two morning sessions were held: the first was a General Session which included four papers: "Wheaton, Maryland" by Morton W. Harm "Imagineering in Cartographic and Geographic Research" by Robert I Wyener; "The Extant Cartographic Records of the Wheeler Surveys," by J. Fred Winkler; and "Techniques of Portraying Local Relief," by Eric Fischer. This session was chaired by Margery Howarth and Charlotte Burtis. The second session, chaired by Victor Roterus, wa a symposium on "Theories and Techniques Used in a Study of Urban and Land Use in the Washington Metropolitan Area," with papers by Homer Hoyt, Jerome Pickard, Robert C. Klove, and John Hewins.

The luncheon was held in the Auditorium of the National Academy of Sciences Building, 110 guests being present. Dr. H. Richard Gault, Executive Secretary of the Division of Earth Sciences, presided, and introduced Dr. William W. Rubey, Chairman of the National Research Council, and Dr. Wallace W. Atwood, Jr., Director of the Office of International Relations of the Council, each of whom spoke briefly about the function and activities of the Council. Walter Bailey, Chairman of the luncheon committee, introduced Dr. Gault.

The afternoon meeting included a symposium, the subject of which was "Can We Raise the Level of Geographic Research?" Participants included Louis Peltier, Evelyn Pruitt, David Simonett, Douglas H.K. Lee, and Meredith Burrill (whose paper was read by Richard Hall). The Chairman of this meeting was Vincent M. Throop. Spirited discussion followed.

The sessions concluded with a short paper on "The Cartographic Presentation and General Interpretation of the Distribution of Membership of the AAG," by the Division Chairman, Herman R. Friis. This was followed by the installation of the newly elected officers:

Division Chairman	S. W. Boggs
Program Chairman	Victor Roterus
Field Trip Chairman	Walter Bailey
Secretary-Treasurer	Betty Didcoct.

IF YOU ARE CHANGING YOUR ADDRESS

Please report your new address to the Central Office as early as possible. It is often necessary to prepare the wrappers for the publications several weeks before they are mailed, and although every effort is made to keep our address list up-to-date, cooperation of the membership is necessary. Second-class mail is not automatically forwarded by the post office to a new address unless the addressee has made arrangements with the post office for payment of additional postage.

IF YOU HAVE FILED A CARD WITH THE PLACEMENT COMMITTEE

When vacancies are reported to the Committee, notices are sent to the ten or twelve most suitably qualified candidates. It is therefore imperative that you write immediately to the Central Office acknowledging receipt of the notification and indicating whether you intend to apply for that particular vacancy or not. If you do not apply you should give the reason for not doing so, so that you will, in future, only be notified of more suitable openings. Other candidates can then be notified and the Committee will not be in the embarrassing position of having informed a prospective employer that ten candidates will apply, when only two or three actually do so. You should not file a card with the Placement Committee unless you are prepared to fulfil these minimum obligations.

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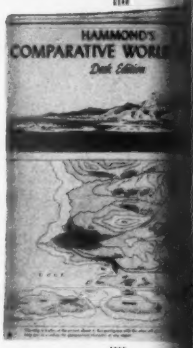

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